

**FLOW THROUGH ASYNCHRONOUS ELASTIC FIFO APPARATUS AND  
METHOD FOR IMPLEMENTING MULTI-ENGINE PARSING AND  
AUTHENTICATION**

Abstract of the Disclosure

5           A flow through asynchronous elastic first-in, first-out (FIFO) apparatus  
and method are provided for implementing multi-engine parsing and  
authentication. A FIFO random access memory (RAM) has a data input for  
receiving data and control information and a data output for outputting the  
data and control information. The FIFO RAM includes a plurality of locations  
10       for storing a plurality of words, each word including a set number of bits.  
Write clocked logic is provided for loading the data and control information to  
the FIFO RAM at a first clock frequency. Asynchronous read clocked logic is  
provided for outputting the data and control information from the FIFO RAM  
at a second clock frequency. The first clock frequency of the write clocked  
15       logic and the second clock frequency of the asynchronous read clocked logic  
and a data width of the FIFO RAM are selectively provided for outputting the  
data and control information from the FIFO RAM with no back pressure.